



ELSEVIER

Carbohydrate Research 287 (1996) C3-C4

---

---

CARBOHYDRATE  
RESEARCH

---

---

## Author index

Bandwar, R.P. 157

Blaschke, G. 139

Bogulska, M. 91

Bøgwald, J. 225

Castronuovo, G. 127

Chankvetadze, B. 139

Chapelle, S. 37

Chapron, Y. 21

Coplin, D. 59

Crouzy, S. 21

Čudić, M. 1

Dabrowski, J. 91

Dabrowski, U. 91

Debouzy, J.-C. 21

Domke, T. 59

Edebrink, P. 225

Elia, V. 127

Elofsson, M. 1

Endresz, G. 139

Fauvelle, F. 21

Fessas, D. 127

Fritzell, T.H. 77

Furneaux, R.H. 101

Geider, K. 59

Gigg, J. 263

Gigg, R. 263

Göschl, M. 21

Gradnig, G. 49

Gray, J.S.S. 203

Hemmingson, J.A. 101

Hoffman, J. 225

Horvat, J. 1

Horvat, Š. 1

Hubbard, R.E. 247

Jakubetz, H. 139

Jansson, P.-E. 225

Jenkins, D.J. 169

Juza, M. 139

Katzenellenbogen, E. 91

Kihlberg, J. 1

Kimura, A. 255

Kitahata, S. 213

Klaveness, J. 77

Koizumi, K. 213

Kojić-Prodić, B. 1

Krishnakumar, R.V. 117

Legler, G. 49

Manley-Harris, M. 183

Matulová, M. 37

Milinković, V. 1

Moll, H. 123

Montana, J.G. 247

Montgomery, R. 203

Moriyón, I. 123

Mort, A. 59

Murphy, P.V. 247

Murray-Brown, V.H. 101

Nasu, A. 271

Natarajan, S. 117

Nimtz, M. 59

Oguma, T. 271

Okada, Y. 213

Potter, B.V.L. 169

Qiu, F. 59

Rao, C.P. 157

Richards, G.N. 183

Robyt, J.F. 255  
Romanowska, E. 91  
Rongved, P. 77  
Schurig, V. 139  
Strande, P. 77  
Stütz, A.E. 49  
Taylor, R.J.K. 247  
Tobe, K. 271  
Uchida, R. 271

Velasco, J. 123  
Velleca, F. 127  
Verchère, J.-F. 37  
Vinogradov, E.V. 123  
Viscardi, G. 127  
Wray, V. 59  
Yamaji, N. 271  
Yang, B.Y. 203  
Zähringer, U. 123  
Zhang, Y. 59



ELSEVIER

## Subject index

### 2-Acetamido-1,2-dideoxyojirimycin

A novel approach to the 1-deoxyojirimycin system: synthesis from sucrose of 2-acetamido-1,2-dideoxyojirimycin, as well as some 2-N-modified derivatives 49

### Acyloxymethyl esters

The one-pot esterification of phosphoric acids with silver carbonate and alkyl halides in refluxing toluene 263

### Adenophostin

A  $\text{Ca}^{2+}$ -mobilising carbohydrate-based polyphosphate: synthesis of 2-hydroxyethyl  $\alpha$ -D-glucopyranoside 2',3,4-trisphosphate 169

### Agar polysaccharides

Biosynthesis of agar polysaccharides in *Gracilaria chilensis* Bird, McLachlan *et al.* Oliveira 101

### Amino acid

Preparation and structural characterization of N-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-O-isopropylidene- $\alpha$ -D-galactopyranose moiety 1

### Amino acid complexes

Crystal structure of an adduct of sarcosine with sucrose 117

### Amino acid linker

Polysaccharides as carriers for magnetic resonance imaging contrast agents: synthesis and stability of a new amino acid linker derivative 77

### Biodegradable phosphate esters

The one-pot esterification of phosphoric acids with silver carbonate and alkyl halides in refluxing toluene 263

### Biosynthesis

Biosynthesis of agar polysaccharides in *Gracilaria chilensis* Bird, McLachlan *et al.* Oliveira 101

### Calorimetry

Thermodynamics of the interaction of  $\alpha$ -cyclodextrin with monocarboxylic acids in aqueous solutions: a calorimetric study at 25 °C 127

### Capillary electrophoresis (CE)

Analysis of charged cyclomalto-oligosaccharides (cyclodextrin) derivatives by ion-spray, matrix-assisted laser-desorption/ionization time-of-flight and fast-atom bombardment mass spectrometry, and by capillary electrophoresis 139

### Chlorosulfonyl group

Glycosylation reactions of 2,3,4-tri-O-chlorosulfonyl- $\beta$ -L-fucopyranosyl chloride and 2,3,4-tri-O-chlorosulfonyl- $\beta$ -D-xylopyranosyl chloride 247

### $^{13}\text{C}$ Labelling

Biosynthesis of agar polysaccharides in *Gracilaria chilensis* Bird, McLachlan *et al.* Oliveira 101

### $^{13}\text{C}$ NMR

Furanose vs. acyclic forms of carbohydrate ligands. A multinuclear NMR spectroscopy study of the molybdate and tungstate complexes of D-glycero-L-manno-heptose 37

### Contrast agents

Polysaccharides as carriers for magnetic resonance imaging contrast agents: synthesis and stability of a new amino acid linker derivative 77

### Cyclodextrin

Investigation of the  $\alpha$ -cyclodextrin-myo-inositol phosphate inclusion complex by NMR spectroscopy and molecular modeling 21

### $\alpha$ -Cyclodextrin

Thermodynamics of the interaction of  $\alpha$ -cyclodextrin with monocarboxylic acids in aqueous solutions: a calorimetric study at 25 °C 127

**Cyclodextrin derivatives**

Analysis of charged cyclomalto-oligosaccharides (cyclodextrin) derivatives by ion-spray, matrix-assisted laser-desorption/ionization time-of-flight and fast-atom bombardment mass spectrometry, and by capillary electrophoresis 139

**Cyclomaltodextrinase**

A convenient preparation of maltooctaose and maltononaose by the coupling reaction of cyclomaltodextrinase 271

**Cyclomaltohexaose ( $\alpha$ CD), heterogeneous doubly branched**

Isolation by HPLC of the positional isomers of heterogeneous doubly branched cyclomaltohexaose having one  $\alpha$ -D-galactosyl and one  $\alpha$ -D-glucosyl side chain and determination of their structures by enzymatic degradation 213

**1-Deoxynojirimycin**

A novel approach to the 1-deoxynojirimycin system: synthesis from sucrose of 2-acetamido-1,2-dideoxynojirimycin, as well as some 2-N-modified derivatives 49

**Dipeptide**

Preparation and structural characterization of N-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-O-isopropylidene- $\alpha$ -D-galactopyranose moiety 1

**Enzymatic degradation**

Isolation by HPLC of the positional isomers of heterogeneous doubly branched cyclomaltohexaose having one  $\alpha$ -D-galactosyl and one  $\alpha$ -D-glucosyl side chain and determination of their structures by enzymatic degradation 213

**Enzymatic synthesis**

A convenient preparation of maltooctaose and maltononaose by the coupling reaction of cyclomaltodextrinase 271

**ESIMS**

Analysis of charged cyclomalto-oligosaccharides (cyclodextrin) derivatives by ion-spray, matrix-assisted laser-desorption/ionization time-of-flight and fast-atom bombardment mass spectrometry, and by capillary electrophoresis 139

**FABMS**

Analysis of charged cyclomalto-oligosaccharides (cyclodextrin) derivatives by ion-spray, matrix-assisted laser-desorption/ionization time-of-flight and fast-atom bombardment mass spectrometry, and by capillary electrophoresis 139

**Fructose dianhydrides**

Di-D-fructose dianhydrides and related oligomers from thermal treatments of inulin and sucrose 183

**L-Fucose**

Glycosylation reactions of 2,3,4-tri-O-chlorosulfonyl- $\beta$ -L-fucopyranosyl chloride and 2,3,4-tri-O-chlorosulfonyl- $\beta$ -D-xylopyranosyl chloride 247

**Galactopyranose**

Preparation and structural characterization of N-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-O-isopropylidene- $\alpha$ -D-galactopyranose moiety 1

**Gelatinized starch granules**

Reaction of enzymes with starch granules: reaction of isoamylase with native and gelatinized granules 255

**GLC-MS spectroscopy**

Determination of the O-specific polysaccharide structure in the lipopolysaccharide of *Ochrobactrum anthropi* LMG 3331 123

**Glycan**

The glycans of horseradish peroxidase 203

**Glycosidase inhibitors**

A novel approach to the 1-deoxynojirimycin system: synthesis from sucrose of 2-acetamido-1,2-dideoxynojirimycin, as well as some 2-N-modified derivatives 49

**Glycosylation**

Glycosylation reactions of 2,3,4-tri-O-chlorosulfonyl- $\beta$ -L-fucopyranosyl chloride and 2,3,4-tri-O-chlorosulfonyl- $\beta$ -D-xylopyranosyl chloride 247

**Glycosyl chloride**

Glycosylation reactions of 2,3,4-tri-O-chlorosulfonyl- $\beta$ -L-fucopyranosyl chloride and 2,3,4-tri-O-chlorosulfonyl- $\beta$ -D-xylopyranosyl chloride 247

***Gracilaria chilensis***

Biosynthesis of agar polysaccharides in *Gracilaria chilensis* Bird, McLachlan *et al.* Oliveira 101

**D-glycero-L-manno-Heptose**

Furanose vs. acyclic forms of carbohydrate ligands. A multinuclear NMR spectroscopy study of the molybdate and tungstate complexes of D-glycero-L-manno-heptose 37

**Horseradish peroxidase**

The glycans of horseradish peroxidase 203

**HPLC**

Isolation by HPLC of the positional isomers of heterogeneous doubly branched cyclomalto-

hexaose having one  $\alpha$ -D-galactosyl and one  $\alpha$ -D-glucosyl side chain and determination of their structures by enzymatic degradation 213

**Inclusion**  
 Thermodynamics of the interaction of  $\alpha$ -cyclodextrin with monocarboxylic acids in aqueous solutions: a calorimetric study at 25 °C 127

**Inclusion complex**  
 Investigation of the  $\alpha$ -cyclodextrin-*myo*-inositol phosphate inclusion complex by NMR spectroscopy and molecular modeling 21

**Inositol phosphates**  
 A  $\text{Ca}^{2+}$ -mobilising carbohydrate-based polyphosphate: synthesis of 2-hydroxyethyl  $\alpha$ -D-glucopyranoside 2',3,4-trisphosphate 169  
 The one-pot esterification of phosphoric acids with silver carbonate and alkyl halides in refluxing toluene 263

**Inulin thermolysis**  
 Di-D-fructose dianhydrides and related oligomers from thermal treatments of inulin and sucrose 183

**Isoamylase**  
 Reaction of enzymes with starch granules: reaction of isoamylase with native and gelatinized granules 255

**Lipopolysaccharide**  
 Determination of the O-specific polysaccharide structure in the lipopolysaccharide of *Ochrobactrum anthropi* LMG 3331 123  
 Structural studies of the *Vibrio salmonicida* lipopolysaccharide 225

**Magnetic resonance imaging**  
 Polysaccharides as carriers for magnetic resonance imaging contrast agents: synthesis and stability of a new amino acid linker derivative 77

**MALDITOF**  
 The glycans of horseradish peroxidase 203

**MALDITOFMS**  
 Analysis of charged cyclomalto-oligosaccharides (cyclodextrin) derivatives by ion-spray, matrix-assisted laser-desorption/ionization time-of-flight and fast-atom bombardment mass spectrometry, and by capillary electrophoresis 139

**Maltononaose**  
 A convenient preparation of maltooctaose and maltononaose by the coupling reaction of cyclomaltodextrinase 271

**Maltooctaose**  
 A convenient preparation of maltooctaose and maltononaose by the coupling reaction of cyclomaltodextrinase 271

**Maltose-Mn(II) complex**  
 Transition-metal-saccharide chemistry: synthesis and characterisation of D-galactose, D-fructose, D-glucose, D-xylose, D-ribose, and maltose complexes of Mn(II) 157

**Methylation analysis**  
 The glycans of horseradish peroxidase 203

**Mn(II) complexes**  
 Transition-metal-saccharide chemistry: synthesis and characterisation of D-galactose, D-fructose, D-glucose, D-xylose, D-ribose, and maltose complexes of Mn(II) 157

**Modification of starch granules**  
 Reaction of enzymes with starch granules: reaction of isoamylase with native and gelatinized granules 255

**Molecular dynamics**  
 Investigation of the  $\alpha$ -cyclodextrin-*myo*-inositol phosphate inclusion complex by NMR spectroscopy and molecular modeling 21

**Molybdate complexes**  
 Furanose vs. acyclic forms of carbohydrate ligands. A multinuclear NMR spectroscopy study of the molybdate and tungstate complexes of D-*glycero-L-manno-heptose* 37

**Monocarboxylic acids**  
 Thermodynamics of the interaction of  $\alpha$ -cyclodextrin with monocarboxylic acids in aqueous solutions: a calorimetric study at 25 °C 127

**Monosaccharide-Mn(II) complexes**  
 Transition-metal-saccharide chemistry: synthesis and characterisation of D-galactose, D-fructose, D-glucose, D-xylose, D-ribose, and maltose complexes of Mn(II) 157

**Myo-inositol 2-phosphate**  
 Investigation of the  $\alpha$ -cyclodextrin-*myo*-inositol phosphate inclusion complex by NMR spectroscopy and molecular modeling 21

**Native starch granules**  
 Reaction of enzymes with starch granules: reaction of isoamylase with native and gelatinized granules 255

**N-glycation**  
 Preparation and structural characterization of N-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-*O*-isopropylidene- $\alpha$ -D-galactopyranose moiety 1

**N-linked oligosaccharides**  
 The glycans of horseradish peroxidase 203

**NMR**

Structural studies of the *Vibrio salmonicida* lipopolysaccharide 225

**NMR spectroscopy**

Preparation and structural characterization of *N*-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-*O*-isopropylidene- $\alpha$ -D-galactopyranose moiety 1

Investigation of the  $\alpha$ -cyclodextrin-*myo*-inositol phosphate inclusion complex by NMR spectroscopy and molecular modeling 21

Determination of the O-specific polysaccharide structure in the lipopolysaccharide of *Ochrobactrum anthropi* LMG 3331 123

**Nonulosonic acid**

Structural studies of the *Vibrio salmonicida* lipopolysaccharide 225

***Ochrobactrum anthropi***

Determination of the O-specific polysaccharide structure in the lipopolysaccharide of *Ochrobactrum anthropi* LMG 3331 123

**Piperazinedione**

Preparation and structural characterization of *N*-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-*O*-isopropylidene- $\alpha$ -D-galactopyranose moiety 1

**Polysaccharides**

Polysaccharides as carriers for magnetic resonance imaging contrast agents: synthesis and stability of a new amino acid linker derivative 77

**Positional isomer, separation**

Isolation by HPLC of the positional isomers of heterogeneous doubly branched cyclomaltohexaose having one  $\alpha$ -D-galactosyl and one  $\alpha$ -D-glucosyl side chain and determination of their structures by enzymatic degradation 213

**Salmon**

Structural studies of the *Vibrio salmonicida* lipopolysaccharide 225

**Sarcosine**

Crystal structure of an adduct of sarcosine with sucrose 117

**Second messenger**

A  $\text{Ca}^{2+}$ -mobilising carbohydrate-based polyphosphate: synthesis of 2-hydroxyethyl  $\alpha$ -D-glucopyranoside 2',3,4-trisphosphate 169

**Selective protection**

A  $\text{Ca}^{2+}$ -mobilising carbohydrate-based polyphosphate: synthesis of 2-hydroxyethyl  $\alpha$ -D-glucopyranoside 2',3,4-trisphosphate 169

**Silver carbonate**

The one-pot esterification of phosphoric acids with silver carbonate and alkyl halides in refluxing toluene 263

**Single crystal**

Crystal structure of an adduct of sarcosine with sucrose 117

**O-Specific polysaccharide**

Determination of the O-specific polysaccharide structure in the lipopolysaccharide of *Ochrobactrum anthropi* LMG 3331 123

**Stability**

Polysaccharides as carriers for magnetic resonance imaging contrast agents: synthesis and stability of a new amino acid linker derivative 77

**Stannylene**

A  $\text{Ca}^{2+}$ -mobilising carbohydrate-based polyphosphate: synthesis of 2-hydroxyethyl  $\alpha$ -D-glucopyranoside 2',3,4-trisphosphate 169

**Structural analysis**

Isolation by HPLC of the positional isomers of heterogeneous doubly branched cyclomaltohexaose having one  $\alpha$ -D-galactosyl and one  $\alpha$ -D-glucosyl side chain and determination of their structures by enzymatic degradation 213

**Structure**

Structural studies of the *Vibrio salmonicida* lipopolysaccharide 225

**Sucrose**

A novel approach to the 1-deoxynojirimycin system: synthesis from sucrose of 2-acetamido-1,2-dideoxyojirimycin, as well as some 2-N-modified derivatives 49

Crystal structure of an adduct of sarcosine with sucrose 117

**Sucrose thermolysis**

Di-D-fructose dianhydrides and related oligomers from thermal treatments of inulin and sucrose 183

**Thermolysis of sugars**

Di-D-fructose dianhydrides and related oligomers from thermal treatments of inulin and sucrose 183

**Tungstate complexes**

Furanose vs. acyclic forms of carbohydrate ligands. A multinuclear NMR spectroscopy study of the molybdate and tungstate complexes of D-glycero-L-manno-heptose 37

<sup>183</sup>**W NMR, Furanose forms**

Furanose vs. acyclic forms of carbohydrate ligands. A multinuclear NMR spectroscopy study of the molybdate and tungstate complexes of D-glycero-L-manno-heptose 37

**X-ray**

Crystal structure of an adduct of sarcosine with sucrose 117

**X-ray structure**

Preparation and structural characterization of *N*-glycated amino acid and linear or cyclic dipeptides containing the 6-amino-6-deoxy-1,2:3,4-di-*O*- isopropylidene- $\alpha$ -D-galactopyranose moiety 1

**D-Xylose**

Glycosylation reactions of 2,3,4-tri-*O*-chlorosulfonyl- $\beta$ -L-fucopyranosyl chloride and 2,3,4-tri-*O*-chlorosulfonyl- $\beta$ -D-xylopyranosyl chloride 247

